SEQUENCE LISTING

<110> CropDesign N.V.

<120> Plant haemoglobin

<130> 4982-4

<140> 10/551,699
<141> 2005-11-21

<150> PCT/EP04/50405
<151> 2004-04-01

<150> EP 03075974.0
<151> 2003-04-01

<160> 21

<170> PatentIn version 3.3

<210> 1
<211> 860
<212> DNA
<213> Beta vulgaris

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tggtaaaaga atcatgggat ataatgaagc aaaatatccc agaatacagc cttcggtttt 180

tctccataat attggaaatt gctccagcag ccaaaaatat gttctcattt ttaagggatt 240

cagaggaagt tccacagaat aatcccaagc tgaaagctca tgcaatcaag gtttttaaaa 300

tgacatgtga atcagccatt caacttcgag aaaaaggtga agtggttgta ggagagacta 360

cccttaaata tttgggagct atccatttga agaatggagt gattgatccc cattttgagg 420

ttgtgaaaca agcattattg agaaccatag aagaagcaag tggtgacaaa tggagtgaag 480

aattgaaatg tgcttggagt gttgcctatg atcacttagc tgcagccatc aaagctgaga 540

tgaaggaata ggtagcttag ttctcagtcg ccaaaagtat tactctaaaa atattgaata 600

aatattctta ttgtttttga ggggaaatta ttgttattgt tgattctgac tcacttattt 660

atccgagtga cttgatatgg tgctttttct tgccttatta ttgattagca agaaggaaat 720

caaattcata attattggtt taaccatgta atagtgcata ttaattgtga taaaaccttg 780

gtgatatatg taccttattg caaatttaaa ataatattcc ctcggtcttt cattttaaaa 840

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<210> 2
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<212> PRT
<213> Beta vulgaris

<400> 2

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Ile Met Lys Gln Asn Ile Pro Glu Tyr Ser Leu Arg Phe Phe Ser Ile
            20                  25                  30

Ile Leu Glu Ile Ala Pro Ala Ala Lys Asn Met Phe Ser Phe Leu Arg
        35                  40                  45

Asp Ser Glu Glu Val Pro Gln Asn Asn Pro Lys Leu Lys Ala His Ala
    50                  55                  60

Ile Lys Val Phe Lys Met Thr Cys Glu Ser Ala Ile Gln Leu Arg Glu
65                  70                  75                  80

Lys Gly Glu Val Val Val Gly Glu Thr Thr Leu Lys Tyr Leu Gly Ala
                85                  90                  95

Ile His Leu Lys Asn Gly Val Ile Asp Pro His Phe Glu Val Val Lys
            100                 105                 110

Gln Ala Leu Leu Arg Thr Ile Glu Glu Ala Ser Gly Asp Lys Trp Ser
        115                 120                 125

Glu Glu Leu Lys Cys Ala Trp Ser Val Ala Tyr Asp His Leu Ala Ala
    130                 135                 140

Ala Ile Lys Ala Glu Met Lys Glu
145                 150
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<210> 3
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agcaagaagc tttggtgaag gaatcgtggg agatactgaa acaagacatc cccaaataca    180

gccttcactt cttctcacag atactggaga tagcaccagc agcaaaaggc ttgttctctt    240

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aagtcttcaa gatgacatgt gaaacagcta tacagctgag ggaggaagga aaggtggtag    360

tggctgacac aaccctccaa tatttaggct caattcatct caaaagcggc gttattgacc    420
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ctcacttcga ggtggtgaaa gaagctttgc taaggacatt gaaagagggg ttgggggaga 480

aatacaatga agaagtggaa ggtgcttggt ctcaagctta tgatcacttg gctttagcca 540

tcaagaccga gatgaaacaa gaagagtcat aaaaccctat tgatcatttg ggtatcgcat 600

acatgaatct attccacata catgatacac atatacgtgt ttctgtgtgt gtactatgtt 660

gctctctgac tttctacagt tcactatttt aattataaag aaggatcttg tgctatcatt 720

agggagatac gtgatactgt agttcttctt gaaattgtta ttcgtgagaa atatcatggt 780

ttgaagtatt tattttcaca agatggatgt taacgtgggg atcattttac aatcattcta 840

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<210> 4
<211> 158
<212> PRT
<213> Arabidopsis thaliana

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Ser Trp Glu Ile Leu Lys Gln Asp Ile Pro Lys Tyr Ser Leu His Phe
20 25 30

Phe Ser Gln Ile Leu Glu Ile Ala Pro Ala Ala Lys Gly Leu Phe Ser
35 40 45

Phe Leu Arg Asp Ser Asp Glu Val Pro His Asn Asn Pro Lys Leu Lys
50 55 60

Ala His Ala Val Lys Val Phe Lys Met Thr Cys Glu Thr Ala Ile Gln
65 70 75 80

Leu Arg Glu Glu Gly Lys Val Val Val Ala Asp Thr Thr Leu Gln Tyr
85 90 95

Leu Gly Ser Ile His Leu Lys Ser Gly Val Ile Asp Pro His Phe Glu
100 105 110

Val Val Lys Glu Ala Leu Leu Arg Thr Leu Lys Glu Gly Leu Gly Glu
115 120 125

Lys Tyr Asn Glu Glu Val Glu Gly Ala Trp Ser Gln Ala Tyr Asp His
130 135 140

Leu Ala Leu Ala Ile Lys Thr Glu Met Lys Gln Glu Glu Ser
145 150 155

<210> 5
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<212> DNA
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ccagcagcaa aggacatgtt ctctttccta agagacacag atgaagtccc tcataacaat 180

cctaaactca aagctcatgc tgttaaagtc ttcaagatga catgtgagac agcaatacag 240

ctgagggaga aaggaaaggt agtggtggct gacacaaccc tccaatactt gggctctgtt 300

catttcaaga gcggtgttct tgatcctcac tttgaggtgg tgaaagaggc attggtgagg 360

acactgaaag aagggttggg ggagaagtac aatgaagaag tggaaggagc ttggtccaag 420

gcttatgatc acttggcttt agccattaag gccgagatga aacaagaaga ctcacaaaaa 480

ccctaa 486

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<212> PRT
<213> Brassica napus

<400> 6

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20 25 30

Phe Ser Gln Ile Leu Glu Ile Ala Pro Ala Ala Lys Asp Met Phe Ser
35 40 45

Phe Leu Arg Asp Thr Asp Glu Val Pro His Asn Asn Pro Lys Leu Lys
50 55 60

Ala His Ala Val Lys Val Phe Lys Met Thr Cys Glu Thr Ala Ile Gln
65 70 75 80

Leu Arg Glu Lys Gly Lys Val Val Val Ala Asp Thr Thr Leu Gln Tyr
85 90 95

Leu Gly Ser Val His Phe Lys Ser Gly Val Leu Asp Pro His Phe Glu
100 105 110

Val Val Lys Glu Ala Leu Val Arg Thr Leu Lys Glu Gly Leu Gly Glu
115 120 125

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Lys Tyr Asn Glu Glu Val Glu Gly Ala Trp Ser Lys Ala Tyr Asp His
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Leu Ala Leu Ala Ile Lys Ala Glu Met Lys Gln Glu Asp Ser Gln Lys
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Pro
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<213> Artificial sequence

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<223> primer prm05458

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<211> 57
<212> DNA
<213> Artificial sequence

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<212> DNA
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<223> primer prm06021

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<212> DNA
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<210> 14
<211> 10
<212> PRT
<213> Artificial sequence

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<400> 14

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<210> 15
<211> 7
<212> PRT
<213> Artificial sequence

<220>
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<400> 15

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<220>
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<400>  16

Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
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<210>  17
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<212>  PRT
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<220>
<223>  synthetic sequence

<400>  17

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<210>  18
<211>  11
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<223>  synthetic sequence

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1               5                   10


<210>  19
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<213>  Gossypium hirsutum

<400>  19

Met Gly Phe Thr Glu Lys Gln Glu Gly Leu Val Lys Glu Ser Trp Glu
1               5                   10                  15


Val Leu Lys Gln Asp Ile Pro His Ser Ser Leu Arg Phe Phe Ser Leu
            20                  25                  30


Ile Leu Glu Ile Ala Pro Gly Ala Lys Asn Met Phe Ser Phe Leu Arg
        35                  40                  45
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Glu Ser Glu Glu Ile Pro Gln Asn Asn Pro Lys Leu Lys Ala His Ala
    50                  55                  60

Val Lys Val Phe Lys Met Thr Cys Glu Ser Ala Ile Gln Leu Arg Glu
65                  70                  75                  80

Lys Gly Glu Val Val Val Ala Asp Thr Thr Leu Lys Tyr Leu Gly Thr
                85                  90                  95

Val His Val Lys Ser Gly Val Lys Asp Pro His Phe Glu Val Val Lys
            100                 105                 110

Glu Ala Leu Leu Arg Thr Ile Glu Glu Ala Ile Gly Glu Glu Lys Trp
        115                 120                 125

Asn Glu Glu Met Lys Asn Ala Trp Gly Glu Ala Tyr Asp Gln Leu Ala
    130                 135                 140

Glu Ala Ile Lys Ala Glu Met Lys Asn His His Asp Glu Thr Ala
145                 150                 155


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<213>  Lycopersicon esculentum

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Met Gly Phe Thr Asp Lys Gln Glu Ala Leu Val Arg Asp Ser Trp Glu
1               5                   10                  15

Phe Met Lys Gln Asp Ile Pro Gln Leu Ser Leu Arg Phe Phe Ser Leu
            20                  25                  30

Ile Leu Glu Ile Ala Pro Val Ala Lys Asn Met Phe Ser Phe Leu Lys
        35                  40                  45

Asp Ser Asp Glu Leu Pro Glu Asn Asn Pro Lys Leu Arg Ala His Ala
    50                  55                  60

Val Lys Val Phe Lys Met Thr Cys Glu Ser Ala Ile Gln Leu Arg Glu
65                  70                  75                  80

Lys Gly Glu Val Val Val Gly Glu Thr Thr Leu Lys Tyr Leu Gly Ser
                85                  90                  95

Ile His Leu Gln Lys Arg Val Ala Asp Pro His Phe Glu Val Val Lys
            100                 105                 110
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Glu Ala Leu Leu Arg Thr Val Lys Glu Ala Thr Gly Asn Lys Trp Lys
        115                 120                 125


Asp Glu Met Lys Glu Ala Trp Ser Glu Ala Tyr Asp Gln Leu Ala Ser
    130                 135                 140


Ala Ile Lys Ala Glu Met His Ala Glu Ala Ala Ala
145                 150                 155


<210>  21
<211>  152
<212>  PRT
<213>  Casuarina glauca

<400>  21

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1               5                   10                  15


Val Leu Lys Gln Asn Ile Pro Ala His Ser Leu Arg Leu Phe Ala Leu
            20                  25                  30


Ile Leu Glu Ala Ala Pro Glu Ser Lys Tyr Val Phe Ser Phe Leu Lys
        35                  40                  45


Asp Ser Asn Glu Ile Pro Glu Asn Asn Pro Lys Leu Lys Ala His Ala
    50                  55                  60


Ala Val Ile Phe Lys Thr Ile Cys Glu Ser Ala Thr Glu Leu Arg Gln
65                  70                  75                  80


Lys Gly His Ala Val Trp Asp Asn Asn Thr Leu Lys Arg Leu Gly Ser
                85                  90                  95


Ile His Leu Lys Asn Lys Ile Thr Asp Pro His Phe Glu Val Met Lys
            100                 105                 110


Gly Ala Leu Leu Gly Thr Ile Lys Glu Ala Ile Lys Glu Asn Trp Ser
        115                 120                 125


Asp Glu Met Gly Cys Ala Trp Thr Glu Ala Tyr Asn Gln Leu Val Ala
    130                 135                 140


Thr Ile Lys Ala Glu Met Lys Glu
145                 150
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